

REMARKS

Very thanks for Examination's suggestion and thanks for finding some citations about the present invention, thereby, the applicant may know more information about the invention. This case has been carefully reviewed and analyzed in view of the office action.

Responsive to the objections and rejections made of the Examiner in office action. We have amended the specification, claims and abstracts. All the errors disclosed in that office action has been corrected according to the Examiner's indications disclosed in the official action.

Examiner has kindly provides reference prior arts about the present invention, and thus the applicant has more information about the invention. All details of the reference prior arts are fully considered and compared with the present invention.

Indeed the citations disclose some features of the present invention, and the applicant agrees with these viewpoints, however applicant discovers that some features of the present invention are not wholly disclosed by the citations, which are claimed in the original specifications and especially drawings. Thereby, the applicant desires to get the patent rights of these features.

In the following we will discuss the novelty and inventive step of the present invention.

The applicant decides to Please cancel Claim 1, without prejudice or disclaimer of the subject matter thereof, and add new claim 2. The added new claim 2 is based on the original claim 1 and the disclosure in Fig. 1 of the present invention. Thereby, it is assured that the new claims are based on the original disclosure and thus no new matter is added. The relations of the new claim with respect to the original claims and Fig. 1 are shown in the following by which Examiner can understand the structure of new claims with respect to the original claims clearly.

Claim 2. (New) A sleeve with a non-round connecting portion comprising:

a sleeve body 10 having a receiving portion 12 at one end thereof and a connecting portion 13 at another end thereof; and

the receiving portion 12 having an hexagonal inner hole 121 and a round outer wall 122;

the combining portion 13 having a rectangular inner hole 11 which is communicated to the hexagonal inner hole 121 of the receiving portion; the rectangular inner hole 11 having four inner walls; and the combining portion 13 having four outer walls; two opposite walls of the four outer walls being symmetrical to a center of the rectangular inner hole 11 so as to match a size of a first spanner and the other two opposite walls of the four outer walls being symmetrical to the center of the rectangular inner hole 11 so as to match another size of a second spanner; connecting portion having four sides; each two opposite sides are symmetrical; normal lines of the outer walls of the combining portion 13 are approximately vertical to a center axis of the rectangular hole inner hole 11.

Discussion about the Novelty of the present invention.

In Fig. 3 of the citation, USP 1,643,901, it is illustrated that outer periphery of the element 18 is round and inclined so that it can not be used for two different kinds of spanner which has the function of the present invention.

In Fig. 4 of the citation, USP 1,643,901, it is illustrated that the holes 25 and 21 are hexagonal. This is not like the present invention. In the present invention, the hole 11 is rectangular. Further, the

periphery of the upper portion of the element 26 is hexagonal instead of rectangular shape as the present invention.

Fig. 5 of the present invention, USP 1,643,901, it is not shown that a lower hole is a hexagonal shape as the present invention. Furthermore,, the outer sides of the upper portion of the element are inclined, which are not suitable to be clamped by two different kinds of spanner as the function of the present invention.

Referring to Fig. 1 of the citation, USP 1,643,901, it illustrates the use of the citation. It is see that the elements in Figs. 3, 4, and 5 are not provided to be clamped by different spanners (see Fig. 3 of the present invention). In Fig. 1 of the citation, it is illustrated that a handle 11 is inserted into a hole 19 of the sleeve. Thereby, the user of the citation is completely unrelated to the present invention. Thus the elements in Figs. 3, 4, and 5 of the citation, USP 1,643,901, is not like the present invention.

Moreover, in the specification and new claim 1, we add the limitation of "normal lines of the outer walls of the combining portion 13 are approximately vertical to an center axis of the rectangular hole inner hole 11;". This is used to limit the outer shape of the combining portion 13 is so that the outer surfaces of the combining portion 13 has uniform cross sections (see Fig. 1 of the present invention). See Figs. 3, 4, and 5, it is illustrated that the outer surfaces of the upper portions of each sleeve are inclined. However, the outer surface of the combining portion 13 of the present invention is straight so that the spanners can clamp the combining portion tightly. The inclined surfaces in Figs. 2, 3 and 4 are not suitable to be clamped by spanner tightly.

From above discussion, it is apparent that no prior art has the features of the present invention, especially the in new claim 2. Furthermore, as we know that no other prior art has features of the present invention. Thus, the present invention is novel and inventive.

If there still is any errors in the application, applicant requests

and authorizes Examiner to amend the claims, specification and drawings of the present invention so that the claim and specification can match the requirement of U. S. Patent. Attentions of Examiner to this matter is greatly appreciated.

It is now believed that the subject Patent Application has been placed in condition for allowance, and such action is respectively requested.

Respectfully submitted.

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"MARK-UP" COPY OF THE AMENDED SPECIFICATION

SLEEVE WITH NON-ROUND CONNECTING PORTION

Field of the invention

The present invention relates to sleeves of spanners, and ~~particularly particular~~ to a sleeve with a non-round connecting portion, which is suitable for spanners of various sizes.

Background of the invention

Currently, sleeve spanners are used with matched sleeves for locking or releasing screwing elements of various sizes. Thereby, use of the sleeve spanners are convenient in many applications.

However, the size of the spanner is fixed for one corresponding sleeve. Thereby, for a predetermined sleeve, if no corresponding spanner, the sleeve cannot be used. ~~Moreover, the assembly of sleeve and the sleeve spanner is higher so as to it is often that the assembly cannot be used as the workplace is narrow and small.~~ Thereby, in at this situation, the peripheral elements around the narrow workplace must be detached. Thereby, the labor of the workers is increased and the working time is prolonged results in increased cost ~~so as to increase the total cost.~~

Referring to Fig. 1, a prior art disclosed in U. S. Patent No. 6,098,502, in the prior art, a variety of sleeves are disclosed. In Figs. 1 and 2, the periphery of the sleeve has a round shape and in Figs. 3 to 6, the periphery of the sleeve has a hexagonal shape. In Figs. 7 and 8, the sleeve has three layers, the upper two layers have hexagonal shapes and the lower layer has a round shape. Thereby, the advantage of this prior art is that the sleeve can be matched with opened spanners, flower type spanners or sleeve spanners. Thereby, it is convenient. If the sleeve is used with opened spanner or flower type spanner, the total size is

reduced so that ~~as~~ it can be used in narrow spaces.

However, above mentioned prior art still has above described deficiency ~~said defect~~, i.e., the sleeves must be used with matched spanners. It is often that the workers take time to find the spanners. Furthermore, the sleeves shown in Figs. 7 and 8 of the prior art have a larger volume so that it still have above mentioned problem.

Summary of the invention

Accordingly, the primary object of the present invention is to provide a sleeve with a non-round connecting portion which comprises a sleeve body having a receiving portion at one end thereof and a connecting portion at another end thereof; the connecting portion being communicated to the receiving portion; the connecting portion having four sides; each two opposite sides are symmetrical.

The sleeve body has different sections of different diameters for receiving opened spanners or flower type spanners of different diameters so as to move the spanner.

The present invention can avoid the deficiencies ~~defects~~ of prior art, while the functions of prior art sleeves are retained. Thereby, the structure of the present invention is simpler ~~simplified~~ than the prior art structure. Advantages of the present invention are that the present invention can be matched with sleeve form spanners. Other than being used with sleeve spanner, if no other sleeve spanner is in hand, the present invention can be used with an opened spanner or a flower type spanner as a replacement object. Moreover, the present invention can be used with opened spanners or flower spanners of different sizes.

The various objects and advantages of the present invention will be more readily understood from the following detailed description when read in conjunction with the appended drawing.

Brief Description of the Drawings

Fig. 1 is a perspective view the present invention.

Fig. 2 is a schematic view of the present invention which is used to with a spanner.

Fig. 3 is a schematic view showing the sleeve of the present invention is used with spanners of various sizes.

Fig. 4 is a reference of the present invention.

Detailed Description of the Invention

In order that those skilled in the art can further understand the present invention, a description will be described in the following in details. However, these descriptions and the appended drawings are only used to so that those skilled in the art may ~~cause those skilled in the art~~ to understand the objects, features, and characteristics of the present invention, but not to be used to confine the scope and spirit of the present invention defined in the appended claims.

Referring to Fig. 1, the structure of the present invention is illustrated. The structure of the present invention includes a sleeve body 10. An upper end of the sleeve body 10 has a connecting portion 11 which has a rectangular hole for receiving a rod therein. A lower end of the sleeve body 10 has a receiving portion 12 which has a hexagonal shape for receiving screwing element. In Fig. 1, it is illustrated that the connection portion 11 is a rectangular inner hole 11.

Furthermore, an outer edge of the upper end of the sleeve body 10 has a combining portion 13. The combining portion 13 is formed by two pairs of convex cambered surfaces 14 for receiving an opened spanner 20 or flower type spanner. Two convex cambered surfaces 14 of each pair are opposite arranged.

Referring to Figs. 2 and 3, the convex cambered surfaces 14 are formed with different sections of different diameters for receiving opened spanners 20 or flower type spanners of different diameters. The

sleeve body 10 has different sections of different diameters for receiving opened spanners 20 or flower type spanners of different diameters so as to move the spanner. For example, referring to Figs. 2, 3, and 4, it is illustrated that spanners of different diameters A, B, C, D and E are buckled to the sleeve body 10 at positions of different diameters so that the spanners can be rotated.

Referring to Fig. 4, a preferred embodiment about the application of the present invention is illustrated. It is only necessary that the size of the opened spanner 20 is between a maximum and a minimum size of the convex cambered surfaces 14. The opened spanner 20 will be engaged ~~buckled~~ by the convex cambered surfaces 14 for screwing.

As above mentioned, it is known from the preferred embodiment that the present invention can overcome the deficiencies ~~avoid the defects~~ of prior art, while the functions of prior art sleeves are retained. Thereby, the structure of the present invention is simpler ~~simplified~~ than the prior art structure. Advantages of the present invention is that the present invention can be matched with sleeve form spanner. Other than being used with sleeve spanner, if no other sleeve spanner is in hand, the present invention can be used with an opened spanner or a flower type spanner as a replacement object. Moreover, the present invention can be used with opened spanners or flower spanners of different sizes.

With reference to Fig. 1 of the present invention, it is illustrated that the sleeve body 10 has the receiving portion 12 at one end thereof and a portion 13 at another end thereof; and the receiving portion 12 has an hexagonal inner hole 121 and a round outer 122. The combining portion 13 has the rectangular inner hole 11 which is communicated to the hexagonal inner hole 121. The rectangular inner hole 11 has four inner wall; and the combining portion 13 has four outer walls. Two opposite walls of the four outer walls are symmetrical to a center of the rectangular inner hole 11 so as to match a size of a first spanner and the other two opposite walls of the four outer walls being symmetrical to the

center of the rectangular inner hole 11 so as to match another size of a second spanner. Normal lines of the outer walls of the combining portion 13 are approximately vertical to a center axis of the rectangular hole inner hole 11.

The present invention is thus described, it will be obvious that the same may be varied in many ways. Such variations are not to be regarded as a departure from the spirit and scope of the present invention, and all such modifications as would be obvious to one skilled in the art are intended to be included within the scope of the following claims.